



# INSIGHT on Coinage

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EDITORIAL

Number 24

It has been said before that "Ignorance is Bliss".

A month ago I received a call from a fellow who wanted to know where PCI came up with the grade XF-45 that we had assigned to one of his coins! I like to find out some background on these "special" customers so I asked him how long he had been a coin collector. "For years", he replied, "probably from long before you were born". Next, I asked the caller if he was a member of the American Numismatic Association. "Of course I am". Had he ever heard of the ANA Grading Guide? "Sure, I'm the President of the... (mid-size New England city) Coin Club. By now, I couldn't conceal my surprise as I asked him (the devil made me do it) if he had ever READ IT? I quickly explained to his satisfaction that XF-45 was an "official" ANA grade used to describe a Choice Extremely Fine coin that was also used by the major grading services. In reality no collector can be expected to know everything about coins but this example of numismatic ignorance from the President of a large coin club should be intolerable.

I'm also reminded of my surprise years ago when I discovered that some of our consultants considered to be expert numismatic authenticators were qualified in one field and virtually worthless in others. During this time, even two widely respected numismatic columnists gave us countless hours of humorous reading coupled with frustration at their often erroneous "tips" on coin authentication. We couldn't tell these "Ex-Perts" anything. They knew it all.

Know your personal limits. For example, I've chosen to focus my career on coin grading and authentication. Consequently, I missed out on many interesting facets of numismatics along the way such as minting errors. ANACS had real expert consultants at the Bureau of the Mint so it was not necessary for me to learn how to authenticate striking errors. I certainly don't know it all. In fact, until about seventeen or eighteen years ago, I didn't realize there were any doubled die coins around except for those listed in the Redbook! Have I made my point clear? The amount of knowledge I possess in some fields such as striking errors would fit inside a thimble. That's why you will not read a great deal about striking errors in Insight. For information in that field as well as an easy to understand discussion of coin production and minting errors, I recommend the excellent book by Arnold Margolis. I feel that those who write for the public should also focus on their area of expertise lest they cause confusion and do more harm than good. At least one numismatic columnist still has not learned this and continues to entertain authenticators with his occasional misinformed rumblings. Remember, don't believe all you read.

## BOOS AND GEMS

Recently, one of my students taking the Institute's Coin Grading Correspondence Course mailed in the results of a homework assignment to investigate the effects of cleaning on luster. At this time, I'm still waiting permission to use his name but he'll recognize the experiment. His paper was so well done that I want to share parts of it with you.

Previously, I've written about Mint Luster in issue number eighteen of Insight. The topic of Coin Cleaning also appears in several past issues. We know improper cleaning of a coin will effect its luster. Even the cumulative effects of proper coin cleaning will eventually change a coin's luster in a way we can detect.

Luster is caused by the reflection of light from an object's surface. The quality of this luster is affected by the type and intensity of the lighting and the surface characteristics of the object. Look around the place you are reading this newsletter, practically everything should have luster - unless the lights are off! Notice that the luster of wooden objects is not the same as that from objects made of metal, plastic, or glass.

Mint Luster is the reflection of light from the surface of a high grade coin. In fact, due to peculiarities of their design, traces of Mint Luster can be found on some coins which are worn down to the Very Fine grade. Mint Luster is caused by the reflection of light from a coin's radials. It can be seen as a "cartwheel effect" as the coin is moved in the light. Even a circulated coin will have luster but it will appear more diffused. It's a quality of the light reflecting from the worn metal surface - just as that from a fork or spoon. Whizzed, cleaned, and polished coins will also have luster but it will look different from natural Mint luster.

\* BOO: One long held belief in numismatics is that dipping a coin will ruin its luster. One "Ex-Pert" numismatist contends that even dipping a coin once will impair its luster. He states that if you hold a Commemorative coin in the light by a window and measure its brilliance with a photographic light meter, after dipping the coin in a commercial coin cleaner and taking the same measurement, the light reading will be lower! That's nuts, but I'll bet the cloud that blocked the sun during his second measurement was a pretty sight to see. To further illustrate his point, he shows "Before" and "After" micrographs of the surface of a coin taken with a scanning electron microscope. Unfortunately for the experiment, the micrographs do not appear to be of the same area of the coin. We are thus left with faulty conclusions backed up with bad science.

\* GEM: Now, I would like to share the results of an experiment by one of my students which corroborates my research. The assignment was to take an inexpensive BU silver coin and brush it lightly ON ONE SIDE to see how fast hairlines developed. Next, dip the coin to see how long it takes to dull the luster on the other side. I encourage all readers to try this also. Student's findings:

Part 1 - Brushing (Viewed at 20X magnification.) "Even with the naked eye, the hairlines were detectable as luster impairment depending on how the coin was positioned under the light".

A. Camel's hair brush:

- \* 3 soft strokes = no visible hairlines.
- \* Several harder strokes = minor hairlines.
- \* Vigorous brushing (as if to remove dirt) = many hairlines.  
[This is what many copper collectors do to their coins several times a year! - ED]

B. Toothbrush:

- \* 3 light strokes = minimal hairlines.
- \* Several harder strokes = multiple hairlines.

Part 2 - Dipping (Each "dip" was for five seconds with the solution being agitated. Coin rinsed between dips.)

- \* Dipped and rinsed ten times = no change in luster.
- \* Soaked (about 3 min.) and rinsed = no change, even under 10X magnification.
- \* Soaked for over 20 Min. = very minute luster impairment on high points of coin. Note: this coin was stacked in a tube for over twenty years. Did chemical attack area of roll rub first? [Very interesting - Ed]

Make no mistake, even if done properly, dipping a coin will eventually effect its luster - but it's not going to happen after the first time. So the question is WHEN. This introduces many variables such as the metallic composition and condition of the coin, duration, concentration and age of the dip, etc. The student's findings about the possible effects of roll rub support this. What I teach with certainty is this: Sometime between the first few times (usually no change) and the ten thousandth time (when both the coin and your rubber-gloved fingers have dissolved away) - even proper dipping will affect a coin's luster. Be very careful while trying to verify these experiments! Dips are poison.

#### MARKET NOTES

Looking back to the time when I was an "active" collector, I realize that my best purchases (besides cherrypicking) - the coins I enjoyed the most; the coins which everyone wanted to buy; the coins which returned a good profit, etc. - often had one thing in common. Each was purchased with great reluctance coupled with the gut wrenching knowledge that I was OVER PAYING for the coin at the prevailing market levels! Apparently, the dealers who owned these coins loved them too because they were either firm on their price or reluctant to give anything but the slightest discount. Each of these coins went into my collection with the sickening feeling that I had made a really dumb purchase by not waiting for a nicer coin at a more reasonable price. Truthfully, there may not have been many nicer. Perhaps you have had this experience. Each

was a coin which I had been unable to forget after I had priced them and rejected them as too expensive the first time around the coin show. I kept returning to reappraise their originality\* and beauty. Finally I purchased them at what I believed was an inflated price. With time, each of these coins became a gem of my collection and a good investment.

At the National Gold Show in Saint Louis I saw an example of this philosophy on a lower grade coin than would usually have caught my eye. A dealer had a Premium Quality (PQ) MS-64 1879-CC Morgan dollar (high-end 64, possibly MS-65) on display in an NGC slab. It was an awesome MS-64. Another dealer was looking at the coin. He asked the price which turned out to be \$900 over bid! He didn't purchase it but that's the kind of coin a collector would want to buy. Apparently, everyone who looked at the coin wanted to know its selling price. Its owner said to the other dealer, "If no one asks the price of a coin in my case I can't sell any coins and everyone prices this one". In a year or two, everyone who saw this coin will probably wish they had bought it, including me.

The last two shows I have attended, both in the midwest, have been fairly slow. Perhaps taxes and the beginning of spring have slowed down the apparent recovery of the coin market. It is still a BUYERS market yet collectors will often run up against a dealer who refuses to lower his prices to prevailing levels, even for average pieces.

\* Note: You MUST know what 100% original, Full Mint State coins with NO luster breaks look like (Extremely Rare for some coin types). Over paying for cleaned sliders will never pay.

## BACK TO BASICS

One of the most difficult grading concepts to understand is rubbing. Rubbing is defined as the application of friction under pressure. This definition serves to describe two of the main ways to destroy the natural luster on a coin's surface. Can you think of the other? Hint: It's discussed in this newsletter.

Rubbing is cumulative, so it exists in degrees of severity from very slight and hardly noticeable to very noticeable (cabinet friction or circulation wear). Because of this, there is considerable disagreement among numismatists as to when a coin is Uncirculated and when it becomes About Uncirculated. The knowledge of the grader as well as the lighting and magnification he uses only further diversifies this determination.

\* Roll Rub: Loss of original luster on the surfaces of a coin due to compressional forces of friction in a constrained area such as a coin storage tube or bank wrapped roll.

Although all rubbing destroys the original surface of a coin, this form, Roll Rub is often tolerated on coins because it produces a different "look", not considered as detrimental as friction wear due to circulation. As a result, roll rub does not affect the grade or value of a coin in as negative a way as other types of rubbing.

Roll Rub is characterized by a shiny, flat, area of lost detail, generally located in specific areas of the relief for each coin type. It occurs when the relief design of two coins is pressed together with a minimum of sideways displacement. All the forces work to flatten the minute radials on the surfaces where the coins touch which destroy the original "frosty" luster. Although this effect occurs commonly on most coins which were rolled, it is most easily seen on the St. Gaudens twenty dollar coins. These coins were stacked, rolled, and stored previously so the softness of their metallic composition combined with their abundant weight aided this type of frictional compression. As stated previously, the main characteristic which identifies Roll Rub from friction wear is its shiny surface. When rotating a coin in the light, if the area of apparent wear and loss of detail goes from shiny-bright to shiny-dark, the coin has Roll Rub and may still be considered as Uncirculated. If the surface changes from shiny-bright to dull, you are looking at cabinet friction or friction wear from circulation.

As with all aspects of grading, you must first be certain that the coin you are examining is natural and not improperly cleaned, buffed, or polished which will confound the rotation test for rubbing because the dull circulated surfaces are rendered shiny by the buffing.

The photomicrographs below show the eagle's neck on the reverse of two St. Gaudens twenty dollar gold coins. The coin on the left is "Full Mint State" having no trace of wear. The coin on the right has a trace of wear. This amount of wear is called "Roll Friction" or "Roll Rub".



The grading services and most knowledgeable collectors and dealers will tolerate much more rub than this before they will drop a coin's grade to About Uncirculated. This is especially true of gold coins because of their softness.

And here lies the rub! A diligent collector can examine a group of these twenty dollar coins (all graded as Mint State in slabs), and purchase only "Full Mint State" coins for the same price as the "super-sliders", or coins with Roll Rub. Then, in the future, if collectors or the grading standards become more strict with regard to roll friction, he will be holding only technically Uncirculated coins with no trace of wear of any kind!

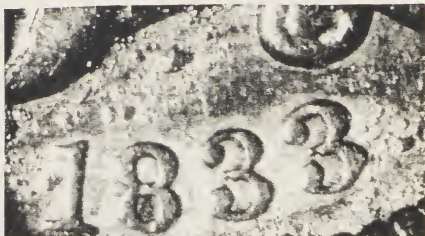
#### MICROSCOPICALLY SPEAKING

In the last issue of Insight on Coinage, as well as in two previous columns in Numismatic News, I wrote about "Extra Metal" (EM) defects as found on both genuine and counterfeit coins. In case you have read otherwise, I can assure you that professional numismatic authenticators, such as J.P. Martin of the American Numismatic Association Authentication Bureau and this writer among others, have applied this term to coin authentication long before its usage by the numismatic error collectors.

A short review of EM follows for those of you who are new subscribers. Shame on any readers who have not yet subscribed to Numismatic News or Coin World where these topics are discussed! Remember my Editorial comment, "Ignorance is Bliss".

EM is a raised defect such as a lump or pimple which is not part of a coin's design. During coin authentication, be alert for EM. Rough and irregular shaped EM on a coin, can result from rust, damage, or chips in the dies due to usage. Breen #3923, an 1833 quarter is the perfect example of a genuine coin struck with rusted dies. It is covered with EM and would be judged to be counterfeit by those with just enough training in coin authentication to be "dangerous" to themselves and others. EM which occurs as smooth, rounded lumps, especially in the flat recesses or field, often indicates that the coin may be a cast fake.

1833 Capped Bust  
quarter, BR-3923,  
struck with rusty  
obverse dies. EM  
lumps around the  
date area.





Smooth, rounded lumps of EM can also occur on genuine coins! Under adverse conditions, such as fire or burial, gas bubbles of Hydrogen and Oxygen from occluded water vapor in a coin's planchet can migrate through a coin until they push up a tiny bubble on its surface. Figure 1 shows a modern Copper plated Zinc cent with similar gas occlusions. Both of the photomicrographs which follow show the date area of a 1936 Lynchburg Commemorative half dollar. Note the lump of EM near the top right of the numeral six in the date of the coin in Figure 2. This "defect" is not seen on genuine Lynchburg halves. Using a stereo microscope and a toothpick, the lump can be harmlessly "pressed-out" without leaving a trace (Figure 3). This indicates that the EM was a gas bubble, slightly under the coin's surface, and not the type of solid metal bubble associated with cast fakes.

Figure 1 at right: Gas bubbles around "Liberty" on a Copper - plated Zinc cent.

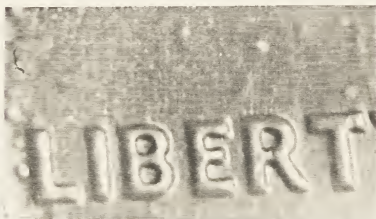


Figure 2



Figure 3



The test for trapped gas is straightforward. If you decide to try this test at home, you must be very careful that you do not damage the coin's surface. It is best performed using a stereo microscope set at high power. Place the suspect coin on a firm surface and locate what you believe to be an EM bubble caused by trapped gas. Next, hold a round toothpick parallel to the surface of the coin near one edge of the bubble and gently R-O-L-L it over the lump. If the lump does not press out, look for another to test. If both bubbles fail to flatten, it indicates that they are solid and the coin may be a fake. Do not try to perform this test on irregular, rough EM which is usually solid.

## NEW VARIETIES

The table below is an update of the possible combinations of hub Types used to produce dies for Trade dollars. Type 1, Type 2, and the previously unreported Type 2M hubs (See Insight #22) are listed. A black dot indicates a confirmed hub combination. Circles indicate that I have not physically confirmed the combination. Any additions to this table will be published at a later date.

HUB TYPE    Obv./Rev.

DATE & MINT	1/1	1/2M	1/2	2M/1	2/1	2M/2	2M/2M	2/2M	2/2
1873 to 1874-CC	all								
1875	○	●	○						
1875 PR	○	○	○						
1875-S	●	●	●						
1875-s	○	●	○					○	
1875-S/CC	●	○	○						
1875-CC	●	○	○						
1876	●	●	●			○	○		
1876 PR	○	○	○			○	○	○	○
1876-S	●	○	○					○	●
1876-s	○	○	●			○	○	○	●
1876-micro s		●				●			
1876-CC	●	●	●			○	○	○	○
1876-cc	●	○	○			○	○	○	○
1877						●	●	●	○
1877 PR						○	○	○	○
1877-S				○	○		○	○	●
1877-S DDR						●	●	○	●
1877-s				○	○	○	○	○	●
1877-micro s						●			
1877-CC						○	●	○	●
1878						○	○	○	○
1878 PR						○	○	○	○
1878-S						○	○	○	●
1878-S DDR									●
1878-s						○	○	○	○
1878-CC						○	○	○	●
1879 to 1885									all

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